August 12, 2016

MEMORANDUM TO: Bruce A. Watson, Chief
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery and Waste Programs
Office of Nuclear Materials Safety and Safeguards

FROM: Joseph D. Anderson, Chief ***/RA/***
Reactor Licensing Branch
Division of Preparedness and Response
Office of Nuclear Security and Incident Response

SUBJECT: SAFETY EVALUATION INPUT FOR THE CRYSTAL RIVER UNIT 3 INDEPENDENT SPENT FUEL STORAGE INSTALLATION ONLY EMERGENCY PLAN (CAC NO. L53129)

By letter dated May 25, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16146A639), Duke Energy Florida, LLC. (DEF, the licensee) proposed changes to replace the Crystal River Unit 3 Nuclear Plant (CR-3) Permanently Defueled Emergency Plan (PDEP) and associated Emergency Action Level (EAL) Bases Manual with an Independent Spent Fuel Storage Installation (ISFSI) – Only Emergency Plan and associated EAL Bases Manual to reflect the reduced scope of potential radiological accidents with spent fuel in dry cask storage within the ISFSI.

The Reactor Licensing Branch has reviewed the proposed changes to the CR-3 ISFSI-Only Emergency Plan and associated EAL Bases Manual, and concluded that the proposed changes meet the standards of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.47, "Emergency plans," and the requirements of Appendix E, "Emergency Planning and Preparedness for Production and Utilization facilities," to 10 CFR Part 50, as exempted, and continue to provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Therefore, DEF's proposed changes, as outlined in the letter referenced above, are considered acceptable. The basis for our conclusion is contained in the attached safety evaluation input.

This memorandum completes our action on CAC No. L53129.

Enclosure:
Safety Evaluation Input

CONTACT: Jeannette Arce, NSIR/DPR
(301) 287-9053

MEMORANDUM TO: Bruce A. Watson, Chief
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery and Waste Programs
Office of Nuclear Materials Safety and Safeguards

FROM: Joseph D. Anderson, Chief ***/RA/***
Reactor Licensing Branch
Division of Preparedness and Response
Office of Nuclear Security and Incident Response

SUBJECT: SAFETY EVALUATION INPUT FOR CRYSTAL RIVER UNIT 3 INDEPENDENT SPENT FUEL STORAGE INSTALLATION ONLY EMERGENCY PLAN (CAC NO. L53129)

By letter dated May 25, 2016 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML16146A639), Duke Energy Florida, LLC. (DEF, the licensee) proposed changes to replace the Crystal River Unit 3 Nuclear Plant (CR-3) Permanently Defueled Emergency Plan (PDEP) and associated Emergency Action Level (EAL) Bases Manual with an Independent Spent Fuel Storage Installation (ISFSI) – Only Emergency Plan and associated EAL Bases Manual to reflect the reduced scope of potential radiological accidents with spent fuel in dry cask storage within the ISFSI.

The Reactor Licensing Branch has reviewed the proposed changes to the CR-3 ISFSI-Only Emergency Plan and associated EAL Bases Manual, and concluded that the proposed changes meet the standards of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.47, "Emergency plans," and the requirements of Appendix E, "Emergency Planning and Preparedness for Production and Utilization facilities," to 10 CFR Part 50, as exempted, and continue to provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. Therefore, DEF's proposed changes, as outlined in the letter referenced above, are considered acceptable.

The basis for our conclusion is contained in the attached safety evaluation input. This memorandum completes our action on CAC No. L53129.

Enclosure:

Safety Evaluation Input

CONTACT: Jeannette Arce, NSIR/DPR
(301) 287-9053

Distribution:
M. Norris, NSIR B. Watson, NMSS

**ADAMS Accession Number: ML16201A135**

| **NAME** | JArce | MNorris | JAnderson |
|---|---|---|---|
| **OFFICE** | NSIR/DPR | NSIR/DPR | NSIR/DPR |
| **DATE** | 8/11/16 | 8/11/16 | 08/12/16 |

**OFFICIAL RECORD COPY**

SAFETY EVALUATION REPORT BY

OFFICE OF NUCLEAR SECURITY AND INCIDENT RESPONSE

RELATED TO CRYSTAL RIVER UNIT 3 NUCLEAR PLANT

INDEPENDENT SPENT FUEL STORAGE INSTALLATION-ONLY

EMERGENCY PLAN LICENSE AMENDMENT

DOCKET NOS. 50-302 AND 72-1035

## 1.0 INTRODUCTION

The Crystal River Unit 3 Nuclear Plant (CR-3) is a decommissioning power reactor located at Red Level, Florida in Citrus County, about 5 miles south of Levy County. The site is 7.5 miles northwest of Crystal River, Florida, and 90 miles north of St. Petersburg, Florida. CR-3 is situated on the Gulf of Mexico, within the Crystal River Energy Complex. The licensee, Duke Energy Florida, Inc. (DEF), is the holder of the CR-3 Operating License No. DPR-72, issued pursuant to the Atomic Energy Act of 1954, as amended, and Part 50, "Domestic Licensing of Production and Utilization Facilities," of Title 10 of the *Code of Federal Regulations* (10 CFR).

By letter dated May 25, 2016 (Reference 1), DEF requested a license amendment to replace the CR-3 Permanently Defueled Emergency Plan (PDEP) and associated Emergency Action Level (EAL) Bases Manual with an Independent Spent Fuel Storage Installation (ISFSI) – Only Emergency Plan and associated EAL Bases Manual. The changes DEF request are the approval of the ISFSI-Only Emergency Plan and associated EAL Bases Manual to reflect all spent fuel being transferred to an ISFSI by the end of February 2018.

## 2.0 REGULATORY EVALUATION

This safety evaluation addresses the impact of the proposed changes on the CR-3 ISFSI-Only Emergency Plan and associated EAL Bases Manual. The regulatory requirements, as exempted by letter dated March 30, 2015 (Reference 2), and guidance on which the U.S. Nuclear Regulatory Commission (NRC) based its acceptance, are as follows:

### 2.1 Regulations

- 10 CFR 50.47(b)(1) states, in part: "... each principal response organization has staff to respond and to augment its initial response on a continuous basis;"

- 10 CFR 50.47(b)(2) states, in part: "... adequate staffing to provide initial facility accident response in key functional areas is maintained at all times, timely augmentation of response capabilities is available ...;"

- 10 CFR 50.47(b)(4) states, in part: "A standard emergency classification and action level scheme, the bases of which include facility system and effluent parameters, is in use by the nuclear facility licensee…;"

- 10 CFR Part 50, Appendix E, Section IV.A, states, in part: "The organization for coping with radiological emergencies shall be described, including definition of authorities, responsibilities, and duties of individuals assigned to the licensee's emergency organization…;" and

- 10 CFR Part 50, Appendix E, Section IV.C.1, states, in part: "The emergency classes defined shall include (1) Notification of unusual events, (2) alert…."

2.2 Guidance

- Revision 1 to NUREG-0654/FEMA-REP-1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (Reference 3), provides a common reference and guidance source for nuclear facility operators to develop radiological emergency response plans.

- Office of Nuclear Security and Incident Response / Division of Preparedness and Response (NSIR/DPR) Interim Staff Guidance (ISG) – 2, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants" (Reference 4), provides guidance for the review of permanently defueled emergency plans for power reactor sites undergoing decommissioning.

- Office of Nuclear Materials Safety and Safeguards / Spent Fuel Project Office (NMSS/SFPO) ISG – 16, "Emergency Planning" (Reference 5), provides emergency plan review guidance applicable to facilities licensed pursuant to the regulatory requirements found at 10 CFR Part 72.

- Nuclear Energy Institute (NEI) document NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors" (Reference 6), endorsed by the NRC in a letter dated March 28, 2013 (Reference 7), as generic (non-plant-specific) EAL scheme development guidance.

## 3.0 TECHNICAL EVALUATION

The NRC staff has reviewed the licensee's regulatory and technical analyses in support of its proposed emergency plan changes, as described in DEF's application and subsequent letter. The staff's technical evaluation is detailed below.

### 3.1 Background

CR-3 has been shut down since September 26, 2009, and the final removal of fuel from its reactor vessel was completed on May 28, 2011. By letter dated February 20, 2013 (Reference 8), DEF submitted a certification to the NRC of permanent cessation of power operations and permanent removal of fuel from the reactor vessel, pursuant to 10 CFR 50.82(a)(1)(i) and (ii).

CR-3 is authorized to possess and store irradiated nuclear fuel at the permanently shut down and defueled CR-3 facility. Spent fuel is currently stored onsite in a spent fuel pool (SFP).

By letter dated September 26, 2013 (Reference 9), DEF requested exemptions for CR-3 from certain planning standards in 10 CFR 50.47(b) regarding onsite and offsite radiological emergency plans for nuclear power reactors; from certain requirements in 10 CFR 50.47(c)(2) that require establishment of plume exposure and ingestion pathway emergency planning zones for nuclear power reactors, and from certain requirements in 10 CFR 50, Appendix E, Section IV regarding the content of emergency plans.

By letter dated March 30, 2015 (Reference 2), the NRC approved the exemptions requested in their September 26, 2013 letter, as supplemented by letters dated March 28, 2014 (Reference 10), May 7, 2014 (Reference 11), May 23, 2014 (Reference 12), and August 28, 2014 (Reference 13). By letter dated March 31, 2015 (Reference 14), the NRC issued Amendment No. 246 for the CR-3 PDEP and EAL scheme based on the requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50, as exempted. The PDEP and EAL scheme were fully implemented on April 7, 2015, in accordance with License Amendment No. 246.

### 3.2 Proposed Changes

By letter dated May 25, 2016 (Reference 1), DEF requested that the NRC review and approve a proposed ISFSI-Only Emergency Plan, and a proposed ISFSI-Only EAL Scheme based on the NEI 99-01, Revision 6 (Reference 6). The proposed amendment would replace the existing CR-3 PDEP and associated EAL scheme, which currently reflect spent fuel stored in the SFP. The major changes that DEF is requesting are: removal of the various emergency actions related to the SFP; removal of non-ISFSI related emergency accident types; replacing the “Shift Manager” title with the “ISFSI Shift Supervisor (ISS)” title as the position which assumes the Emergency Coordinator’s responsibilities, and a revision of the CR-3 Emergency Response Organization (ERO).

The proposed changes modify the scope of onsite EP requirements to reflect the reduced potential radiological accidents with all spent fuel in dry cask storage within the ISFSI. The off-normal events and accidents addressed in the CR-3 ISFSI-Only Emergency Plan are related to the dry storage of spent nuclear fuel at the ISFSI and include only off-normal, accident, natural phenomena, and hypothetical events and consequences as presented in the NUHOMS Certificate of Compliance (CoC) 1004 (amendment 14) Horizontal Modular Storage System Updated Final Safety Analysis Report (NUHOMS FSAR) (Reference 16XX).

Under the previous facility condition of spent fuel stored within the SFP, the most severe postulated beyond-design-basis-accident involved a highly unlikely sequence of events that causes a heatup of the spent fuel, postulated to occur without heat transfer, such that the zircaloy fuel cladding reaches ignition temperature. While highly improbable, the resultant zircaloy fire could lead to the release of large quantities of fission products to the atmosphere. However, after removal of the spent fuel from the SFP, the age and the configuration of spent fuel stored in dry cask storage precludes the possibility of such a scenario. After all spent fuel is transferred to dry cask storage within the ISFSI, the number and severity of potential radiological accidents is significantly less than when spent fuel was stored in the SFP. Therefore, the potential radiological consequences of accidents possible at CR-3 are further reduced.

There continues to be no need for formal offsite radiological emergency preparedness (REP) plans under 44 CFR 350 at CR-3 because no design-basis accident or reasonably conceivable beyond-design-basis accident can result in radioactive releases that exceed Environmental Protection Agency (EPA) Protective Action Guides (PAGs) (Reference 17) beyond the exclusion area boundary.

3.3 Evaluation

*a. ISFSI EALs and Removal of SFP Initiating Conditions and EALs*

The initiating conditions (ICs) and EALs associated with the emergency classification levels in the current PDEP are based on Appendix C to NEI 99-01, Revision 6 (Reference 6), which addresses a nuclear power reactor that has permanently ceased operations and has permanently defueled. After all spent fuel has been removed from the SFP and placed in dry cask storage within the ISFSI, the ICs and EALs in Appendix C to NEI 99-01 that are associated with the SFP at a decommissioning facility are no longer required. Additionally, certain ICs and EALs whose primary function is not associated with the SFP are also no longer required when administrative controls are established to limit source term accumulation and the offsite consequences of uncontrolled effluent releases. Examples of administrative controls for radiological source term accumulation limits and methods to control the accidental dispersal of the radiological source are:

- Limits on radioactive materials collected on filter media and resins (dose rate limit);
- Limits on surface or fixed contamination on work areas that may create airborne radioactive material (activity limits); and
- Limiting dispersal mechanisms that may cause a fire (e.g., limits on combustible material loading, use of fire watch to preclude fire, etc.) or placement of a berm around a radioactive liquid storage tank.

With respect to the aircraft-related EALs, security-based ICs and EALs were provided to licensees in NRC Bulletin (BL) 2005-02, "Emergency Preparedness and Response Actions for Security Based Events," dated July 18, 2005 (Reference 18). BL 2005-02 was addressed to all holders of operating licenses for nuclear power reactors, except those who had permanently ceased operation and had certified that fuel has been removed from the reactor vessel.

In 2009, the NRC amended its security regulations adding new security requirements pertaining to nuclear power reactors. This rulemaking established and updated generically applicable security requirements similar to those previously imposed by Commission orders issued after the terrorist attacks of September 11, 2001. In the Statements of Consideration (SOC) for the Final Rule for Power Reactor Security Requirements (74 *Federal Register* (FR) 13926; March 27, 2009), the Commission stated, in part:

> Current reactor licensees comply with these requirements through the use of the following 14 strategies that have been required through an operating license condition. These strategies fall into the three general areas identified by §§ 50.54(hh)(2)(i), (ii), and (iii). The firefighting response strategy reflected in § 50.54(hh)(2)(i) encompasses the following elements:
>
> 7. Spent fuel pool mitigation measures

As such, the staff maintained EALs for potential or actual aircraft threats for facilities transitioning into decommissioning with spent fuel stored in a SFP, in addition to maintaining the mitigative strategies license conditions required by NRC Order, EA-02-026, "Interim Compensatory Measures (ICM) Order," issued February 25, 2002 (67 FR 9792; March 4, 2002).

The SOC further stated, in part:

> The NRC believes that it is inappropriate that § 50.54(hh) should apply to a permanently shutdown defueled reactor where the fuel was removed from the site or moved to an ISFSI. The Commission notes that the § 50.54(hh) do not apply to any current decommissioning facilities that have already satisfied the § 50.82(a) requirements.

Therefore, the ICs deleted also include those associated with the mitigative strategies and response procedures for potential or actual aircraft attack procedures as the spent fuel has been removed from the SFP and is stored in the ISFSI.

The ICs listed in the table below are being deleted, either partially or in their entirety as indicated, from the PDEP and EAL scheme for CR-3. The ICs being deleted are either associated only with SFP operation or are ICs for which administrative controls to limit possible effluent releases have been established.

| ALERT | UNUSUAL EVENT |
|---|---|
| PD-AA1 (**all EALs**)<br>Release of gaseous or liquid radioactivity resulting in offsite dose greater than 10 mrem TEDE or 50 mrem CDE | PD-AU1 (**all EALs**)<br>Release of gaseous or liquid radioactivity greater than 2 times the ODCM limit for 60 minutes or longer. |
| PD-AA2 (**all EALs**)<br>UNPLANNED rise in plant radiation levels that impedes plant access required to maintain spent fuel integrity. | PD-AU2 (**all EALs**)<br>UNPLANNED rise in plant radiation levels. |
| | PD-SU1 (**all EALs**)<br>UNPLANNED spent fuel pool temperature rise. |
| PD-HA1*****<br>HOSTILE ACTION ~~within the OWNER CONTROLLED AREA or airborne attack threat within 30 minutes.~~ is occurring or has occurred.<br>1) A HOSTILE ACTION is occurring or has occurred ~~within the OWNER CONTROLLED AREA~~ as reported by the Security Shift Supervisor.<br>**~~OR~~** *<br>2) ~~A validated notification from NRC providing information of an aircraft attack threat within 30 minutes of the site.~~ | PD-HU1*****<br>Confirmed SECURITY CONDITION or threat<br>1) A SECURITY CONDITION that does not involve a HOSTILE ACTION as reported by the Security Shift Supervisor.<br>**~~OR~~**<br>2) Notification of a CREDIBLE SECURITY THREAT directed at the site.<br>**~~OR~~**<br>3) ~~A validated notification from the NRC providing information of an aircraft threat.~~ |

| | |
|---|---|
| | PD-HU2 (**all EALs**)**<br>Hazardous event affecting SAFETY SYSTEM equipment necessary for spent fuel cooling. |

*Only the strike-through portion is being deleted.
**For an ISFSI-only facility, the condition addressed by PD-HU2 remains fully addressed by IC EU1.1.

The ICs listed in the table below being retained are appropriate to address the condition of the ISFSI-Only storage of the spent fuel.

| ALERT | UNUSUAL EVENT |
|---|---|
| **Independent Spent Fuel Storage Installation (ISFSI)** | |
| | E- HU1<br>Damage to a Dry Shielded Canister CONFINEMENT BOUNDARY. |
| **Hazards and Other Conditions** | |
| PD-HA1<br>HOSTILE ACTION is occurring or has occurred. | PD-HU1<br>Confirmed SECURITY CONDITION or threat. |
| PD-HA3<br>Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of an Alert. | PD-HU3<br>Other conditions exist which in the judgment of the Emergency Coordinator warrant declaration of an UNUSUAL EVENT (UE). |

With spent fuel stored within the SFP, the most severe postulated beyond-design-basis accident involved a highly unlikely sequence of events that causes heat up of the spent fuel, postulated to occur without heat transfer, such that the zircaloy fuel cladding reaches ignition temperature. With this limiting beyond-design-basis scenario no longer possible based on the transfer of spent fuel from the SFP to dry cask storage, DEF assessed the following design-basis accidents associated with performance of decommissioning activities with all irradiated fuel stored in the CR-3 ISFSI: 1) cask drop accident (fuel related accident); 2) radioactive material handling accident (non-fuel related), and 3) accidents initiated by external events. For design-basis accident scenarios 1) and 2), the results of the assessment indicate that the projected radiological doses at the controlled area boundary are less than the EPA PAGs. The effects of external events, such as fires, floods, wind (including tornados), earthquakes, lightning, and physical security breaches on the ISFSI that could affect the confinement boundary of the ISFSI remain unchanged from the effects that were considered under the existing PDEP.

As discussed in the previously granted exemption for CR-3 from certain EP requirements, an analysis of the potential radiological impact of a design-basis accident at CR-3 in a permanently defueled condition indicated that any releases beyond the exclusion area boundary were below the EPA PAG exposure levels. The basis for these exemptions has not changed and remains in effect for the proposed emergency plan changes.

Because of the very low risk of consequences to public health and safety resulting from the postulated accidents related to the CR-3 ISFSI, no potential emergencies are classified as higher than an Alert, in accordance with the requirements of 10 CFR Part 50, Appendix E, Section IV.C.1, as exempted. Classification of emergencies as no higher than an Alert also maintains consistency with the regulations in 10 CFR 72.32(a)(3), “Classification of Accidents.”

Based on the staff's review of the CR-3 ISFSI-Only Emergency Plan and associated EAL scheme, as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(4), as exempted, pertaining to a standard emergency classification and action level scheme, is addressed in an acceptable manner in the CR-3 ISFSI-Only Emergency Plan, considering the permanently shut down and defueled status of the facility and the proposed transfer of all remaining spent fuel from the SFP to the ISFSI.

*b. CR-3 ERO Revision*

The existing CR-3 PDEP provides for two (2) ERO augmented positions – an Emergency Mitigation Coordinator and a Radiation Control Coordinator. The proposed CR-3 ISFSI-Only Emergency Plan proposes replacing these positions with a Resource Manager and an individual trained in radiological monitoring and assessment. The Resource Manager will assist in assessing the event and coordinating required resources, including serving as the public information interface. The Resource Manager is required to be in contact with the Emergency Coordinator within two hours of classification of an Unusual Event or an Alert. In addition, DEF proposes that, for a classified event involving radiological consequences, a minimum of one person trained in radiological monitoring and assessment will report to the station within four hours of the emergency declaration.

In its evaluation, the staff considered the accident analysis referenced in the previous section for deletion of EALs, either partially or in their entirety as indicated, related to SFP operation. Specifically, the staff considered postulated accidents that pose a very low risk to public health and safety. There also continues to be a commitment by DEF to maintain the appropriate level of augmented response to an emergency, to include an event involving radiological consequences.

In the SOC for the Final Rule for Emergency Planning Licensing Requirements for Independent Spent Fuel Storage Facilities (ISFSI) and Monitored Retrievable Storage Facilities (MRS) (60 FR 32430; June 22, 1995), the Commission stated, in part:

> For there to be a significant environmental impact resulting from an accident involving the dry storage of spent nuclear fuel, a significant amount of the radioactive material contained within a cask must escape its packaging and enter the biosphere. There are two primary factors that protect the public health and safety from this event. The first is the design requirements for the cask that are imposed by regulation.
>
> These general design criteria place an upper bound on the energy a cask can absorb before the fuel is damaged. No credible dynamic events have been identified that could impart such significant amounts of energy to a storage cask after that cask is placed at the ISFSI.
>
> Additionally, there is a second factor which does not rely upon the cask itself but considers the age of the spent fuel and the lack of dispersal mechanisms. There exists no significant dispersal mechanism for the radioactive material contained within a storage cask.
>
> Based on the design limitations, the majority of spent fuel is cooled greater than 5 years. At this age, spent fuel has-a heat generation rate that is too low to cause significant particulate dispersal in the unlikely event of a cask confinement boundary failure.

Although the analysis has not been able to identify any design-basis accident that would result in a failure of the confinement barrier, the CR-3 ISFSI-Only Emergency Plan requires augmentation of one person trained in radiological monitoring and assessment will report to the station within four hours of the emergency declaration for an event involving radiological consequences.

The proposed CR-3 ISFSI-Only Emergency Plan also provides that additional personnel resources may be directed to report to CR-3 to provide additional support as needed to assess radiological conditions, support maintenance and repair activities, develop and implement corrective action plans, and assist with recovery actions. The augmentation personnel are available from CR-3 staff and other Duke Energy facilities, and can be requested from various contractors.

Based on the staff's review of the CR-3 ISFSI-Only Emergency Plan, as described above, the staff concludes that the planning standard of 10 CFR 50.47(b)(2), pertaining to timely augmentation of response capabilities, is addressed in an acceptable manner in the CR-3 ISFSI-Only Emergency Plan, considering the permanently shut down and defueled status of the facility and the proposed transfer of all remaining spent fuel from the SFP to the ISFSI.

*c. Replacement of the "Shift Manager" title with the "ISFSI Shift Supervisor" title*

DEF revised Section 6.1, "On-Shift Positions," in the ISFSI-Only Emergency Plan to reassign the following Emergency Coordinator responsibilities from the Shift Manager to the ISFSI Shift Supervisor:

- classification of the event,
- notification of Local, State and Federal agencies,
- authorization of radiation exposure in excess of 10 CFR 20 limits,
- management of available station resources,
- initiation of mitigative actions,
- initiation of corrective actions,
- initiation of onsite protective actions,
- decision to request offsite police, fire, or ambulance assistance,
- augmentation of the emergency staff, as deemed necessary,
- coordination of Security activities,
- termination of the emergency condition when appropriate,
- performance of initial radiological assessment, and
- maintaining a record of event activities and suspension of security measures.

The staff evaluation verified the retitled position of ISFSI Shift Supervisor is on-shift at the CR-3 site, 24-hours a day / 7 days a week, and also serves as the senior management position during off-hours. This position assumes overall command and control of the event response as the Emergency Coordinator and is responsible for monitoring conditions and approving all onsite activities. The ISFSI-Only Emergency Plan clearly identify non-delegable responsibilities, along with other designated tasks. The staff considers this an administrative change which will not impact the timing or performance of existing emergency response duties.

Based on the staff's review of the CR-3 ISFSI-Only Emergency Plan, as described above, the staff concludes that the requirements of 10 CFR Part 50, Appendix E, Section IV.A, as exempted, pertaining to responsibilities and duties of individuals assigned to the licensee's emergency organization, is addressed in a satisfactory manner, considering the current status of the facility and the proposed transfer of all remaining spent fuel from the SFP to the ISFSI.

## 4.0 CONCLUSION

Based on the staff's review of the proposed CR-3 ISFSI-Only Emergency Plan and associated EAL Bases Manual, the staff finds that the proposed changes continues to meet the standards in 10 CFR 50.47(b) and the requirements in Appendix E of Part 50, as exempted, and provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency at the DEF facility. Therefore, the NRC staff concludes that the licensee's proposed changes to the CR-3 PDEP and associated EAL Bases Manual in its letter dated May 25, 2016, are acceptable.

## 5.0 REFERENCES


1. Letter from Duke Energy Florida, Inc. to U.S. Nuclear Regulatory Commission, "Crystal River Unit 3 - License Amendment Request 322, Revision 0, Independent Spent Fuel Storage Installation (ISFSI) – Only Emergency Plan, and ISFSI- Only Emergency Action Level Bases Manual, for the CR-3 SAFSTOR Period with Spent Fuel on Site," dated May 25, 2016 (Agencywide Documents Access and Management System (ADAMS) ADAMS Accession No. ML16146A639).

2. Letter from U.S. Nuclear Regulatory Commission to Crystal River Nuclear Plant (CR-3), "Crystal River Unit 3 - Exemptions From Certain Emergency Planning Requirements and Related Safety Evaluation (TAC No. MF2981)," dated March 30, 2015 (ADAMS Accession No. ML15058A906).

3. U.S. Nuclear Regulatory Commission and Federal Emergency Management Agency, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," NUREG-0654/FEMA-REP-1, Rev.1 dated November 1980 (ADAMS Accession No. ML040420012).

4. NSIR/DRP-ISG-2, "Emergency Planning Exemption Requests for Decommissioning Nuclear Power Plants," dated May 11, 2015 (ADAMS Accession No. ML14106A057).

5. SFST-ISG-16, "Emergency Planning," dated June 14, 2000 (ADAMS Accession No. ML003724570).

6. NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors," dated November 2012 (ADAMS Accession No. ML12326A805).

7. Letter from U.S. Nuclear Regulatory Commission to NEI "Technical Evaluation for the Endorsement of NEI 99-01, Revision 6," dated March 28, 2013 (ADAMS Accession No. ML12346A463).

8. Letter from Duke Energy Florida, Inc. to U.S. Nuclear Regulatory Commission, “Crystal River Unit 3 - Certification of Permanent Cessation of Power Operations and that Fuel Has Been Permanently Removed from the Reactor,” dated February 20, 2013 (ADAMS Accession No. ML13056A005).

9. Letter from Duke Energy Florida, Inc. to U.S. Nuclear Regulatory Commission, “Crystal River Unit 3 - License Amendment Request #315, Revision 0, Permanently Defueled Emergency Plan and Emergency Action Level Scheme, and Request for Exemption to Certain Radiological Emergency Response Plan Requirements Defined by 10 CFR 50,” dated September 26, 2013 (ADAMS Accession No. ML13274A584).

10. Letter from Duke Energy Florida, Inc. to U.S. Nuclear Regulatory Commission, “Crystal River Unit 3 - Exemptions to Radiological Emergency Response Plan Requirements Defined by 10 CFR 50.47 and Appendix E to Part 50, Revision 1, and Response to Request for Additional Information,” dated March 28, 2014 (ADAMS Accession No. ML 14098A072).

11. Letter from Duke Energy Florida, Inc. to U.S. Nuclear Regulatory Commission, “Crystal River Unit 3 - Response to Requests for Additional Information and Supplement 1 to License Amendment Request #316, Revision 0,” dated May 7, 2014 (ADAMS Accession No. ML 14139A006).

12. Letter from Duke Energy Florida, Inc. to U.S. Nuclear Regulatory Commission, “Crystal River Unit 3 - Permanently Defueled Emergency Plan and Emergency Action Level Scheme, Revision 1, and Response to Request for Additional Information,” dated May 23, 2014 (ADAMS Accession No. ML 14154A408).

13. Letter from Duke Energy Florida, Inc. to U.S. Nuclear Regulatory Commission, “Crystal River Unit 3 - Exemptions to Radiological Emergency Response Plan Requirements Defined by 10 CFR 50.47 and Appendix E to Part 50, Supplement,” dated August 28, 2014 (ADAMS Accession No. ML 14251A237).

14. Letter from U.S. Nuclear Regulatory Commission to Duke Energy Florida, Inc., “Crystal River Unit 3 - Issuance of Amendment Regarding Changes to the Emergency Plan and Emergency Action Levels (TAC No. MF3415),” dated March 31, 2015 (ADAMS Accession No. ML15027A209).

15. Letter from Duke Energy Florida, Inc. to U.S. Nuclear Regulatory Commission, “Crystal River Unit 3 - Permanently Defueled Emergency Plan, Revision 2 and Response to Request for Additional Information,” dated October 6, 2014 (ADAMS Accession No. ML14288A122).

16. xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

17. Environmental Protection Agency's “Protective Action Guide and Planning Guidance for Radiological Incidents,” Draft for Interim Use and Public Comment, dated March 2013 (PAG Manual).

18. NRC Bulletin (BL) 2005-02, “Emergency Preparedness and Response Actions for Security Based Events,” dated July 18, 2005 (ADAMS Accession No. ML051740058).

Principal Contributor: Jeannette Arce